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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/664,990 | 09/17/2003 | Yao-Dong Ma | | 4615 |

7590 07/28/2005
Yao-Dong Ma
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EXAMINER

CHUNG, DAVID Y

ART UNIT PAPER NUMBER

2871

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,990

Applicant(s)

MA, YAO-DONG

Examiner

David Y. Chung

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-20, 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-8 and 22 rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al. (U.S. 6,344,887).

As to claim 1, Ma et al. discloses a full spectrum reflective cholesteric display. Note in figure 2, the cholesteric liquid crystal cell 210, circular polarizer 260, and metal reflector 270. See column 5, lines 25-50. Ma et al. discloses that the metal reflector changes the direction of light, and is therefore diffusive. See column 5, lines 40-43. The claimed characteristics of the cholesteric material are believed to be inherent and are therefore considered to be met by the cholesteric liquid crystal disclosed by Ma et al. As shown in figure 2, circular polarizer 260 is attached to the back side of the cholesteric cell and the reflector 270 is attached to the utmost back side of the structure. The surface of polarizer 250 opposite the cholesteric cell is considered the front outer surface and is exposed directly to the viewer. Because the structure disclosed by Ma et al. is substantially the same as that disclosed by the applicant, the disclosure of Ma et

al. is considered to meet the claim limitations regarding forward and backward scattered light and the at least one color and bright white color displayed in the controllable focal conic texture area.

As to claim 2, Ma et al. discloses that the circular polarizers are absorptive. See column 6, lines 63-65. Figure 2 shows that the retarder 261 contacting the cholesteric cell.

As to claim 3, Ma et al. discloses that reflector 270 is made of aluminum. See column 5, lines 40-45.

As to claim 4, Ma et al. discloses the rubbed alignment layer. See column 6, lines 10-15.

As to claims 5-8, because the structure disclosed by Ma et al. is substantially the same as that disclosed by the applicant, the disclosure of Ma et al. is considered to meet the limitations of these claims regarding the functionality of the device.

As to claim 22, Ma et al. discloses in figure 4, a full color cholesteric display using a microcolor filter 475 deposited on the image electrodes of display panel 210. See column 8, lines 10-15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


2. Claims 9, 10 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. 6,344,887).

As to claims 9 and 10, Ma et al. discloses that only a small portion of total light, less than 1% can finally reach to the viewer. See column 7, lines 50-55. Although Ma et al. does not explicitly disclose that the specula color of Bragg reflection is preferably viewed in dark or normal ambient conditions, this would have been obvious to one of ordinary skill in the art at the time of invention because with the displays low level of brightness, it would be difficult to view under bright ambient conditions.

As to claim 21, Ma et al. does not disclose that the circular polarizer is reflective. However, this was a matter of design choice. It was well known to those of ordinary skill in the art that the same optical effect could be achieved with either an absorptive or a reflective circular polarizer depending on the desired device setup. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make the circular polarizer reflective because it was a matter of design choice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (571) 272-2288. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.


ROBERT H. KIM
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